Activity #4: Math

Title: Careers (Teacher version)

Note to students: Each report will be graded according to the performance assessment list. Be sure to address each task in the list.

NCTM states:

The need to understand and be able to use mathematics in everyday life and in the workplace has never been greater and will continue to increase. For example:

***Mathematics for life*: Knowing mathematics can be personally satisfying and empowering. The underpinnings of everyday life are increasingly mathematical and technological. For instance, making purchasing decisions, choosing insurance or health plans, and voting knowledgeably all call for quantitative sophistication.**

***Mathematics as a part of cultural heritage*: Mathematics is one of the greatest cultural and intellectual achievements of humankind, and citizens should develop an appreciation and understanding of that achievement, including its aesthetic and even recreational aspects.**

***Mathematics for the workplace*: Just as the level of mathematics needed for intelligent citizenship has increased dramatically, so too has the level of mathematical thinking and problem solving needed in the workplace, in professional areas ranging from health care to graphic design.**

***Mathematics for the scientific and technical community*: Although all careers require a foundation of mathematical knowledge, some are mathematics intensive. More students must pursue an educational path that will prepare them for lifelong work as mathematicians, statisticians, engineers, and scientists.**

Purpose: **To investigate in depth one career choice**
To gain an appreciation and understanding of how pervasive mathematics is in our lives
To know what mathematical skills are necessary for certain careers and to begin to decide "what I want to be when I grow up"?

Materials: computer, Internet, library

Procedure:

1. **You will prepare an in depth report on one career.**
   - **A. Your report must include the following information:**
   - **an overview of this career (Suggest a personal interview, if possible.)**
   - **possible places of employment**
   - **projected earning range (yearly gross earnings)**
   - **description of the mathematical skills necessary to begin training or schooling for this career**
   - **description of the mathematical skills used in this career**
   - **a paragraph about how you feel about this career**

B. Your report must be organized as follows: (A graphic organizer may help students with the report organization. See the attached papers for one such organizer.)

- **cover sheet with your name, class, date, title and graphic.**
- **three to five typewritten (size 12 font and double-spaced) pages, not including graphics.**
- **at least one page with a graphic and explanation (this could be incorporated into the body of your report).**
- **bibliography sheet**

C. You will follow the MLA rules, as you do in English class, for formatting your report. (Post sheets to help students. Good time to discuss plagiarism. This activity offers an excellent opportunity to do some teaming with the English department. Students often work more earnestly, when work "counts" in more than one class.)

2. You will prepare a three to five minute speech to deliver to your classmates concerning the career you researched. Be sure to include the *important facts* in your speech. You do not have to memorize, but should be familiar enough with your speech so that your notes are not read directly. Be prepared to answer some questions. (Classmates and teacher award points for this portion of the activity. See attached sheets.)

3. After the class has presented, students will write a one-page critique of the activity, describing what they learned, what could have been done better, what they would change about the activity, etc.

Extension: Invite several people involved in different careers to speak to the class.

The following web sites and articles provide enrichment and support for this activity:

1. Your Guide to Growing Job Opportunities in Massachusetts: Career Moves, published by the Massachusetts Department of Employment and Training (DET), Economic Analysis Department, April, 2000. (This will be more useful to those working in MA!)

2. Careers in Math: From Astronauts to Architects, video. newspaper, and teacher's resource book, produced by Human Relations Media © MCMXCIV.

3. http://www.mla.org

Graphic Organizer

Assessment list

Cover Sheet: **5 points _____**

- **your name**
- **class**
- **date**
- **title**
- **graphic**

3 pages, not including 2nd graphic: **10 points _____**

2nd graphic: **5 points _____**

Double-spaced typewritten, 12-point font: **5 points _____**

Content, general overview of career: **25 points _____**

Content, projected earnings: **5 points _____**

Content, math needed to enter training or schooling and math used in career: **20 points _____**

Content, your paragraph about the career: **10 points _____**

Bibliography: **5 points _____**

Class presentation: **5 points _____**

Your total out of a possible total of 95 points: _____

(Quick review of proportion here to help students change to percent score.)

Class Presentation Assessment List

_____ 1 point: Student speaks clearly.

_____ 1 point: Student addresses class for three to five minutes.

_____ 1 point: Student communicates meaningful points about the career, including math facts and earnings.

_____ 1 point: Student uses notes only when necessary.

_____ 1 point: Student answers reasonable questions.